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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,310	03/16/2001	Huey-Ru Chang	SUND 188	5395

23995 7590 03/27/2003

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EXAMINER

ALCALA, JOSE H

ART UNIT PAPER NUMBER

2827

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/809,310

Applicant(s)

CHANG ET AL.

Examiner

Jose H Alcalá

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 5-8, 12-16, 18-22, 25-30, 33-37, 40-43 and 47-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-11, 17, 23, 24, 31, 32, 38, 39 and 44-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group 1, Species 1 in Paper No. 7,9,11 is acknowledged. However, claims 47 and 48, were incorrectly identified as readable on the elected species and invention, therefore these claims will be withdrawn from consideration, along the rest of nonelected claims.
2. Claims 5-8,12-16,18-22,25-30,33-37,40-43,47-50 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species and invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7,9,11.

### *Drawings*

3. The drawings are objected to because Figures 2A,2B,6A,6B,7A,8,10B are improperly crosshatched. All of the parts shown in the section, and only those parts, must be crosshatched. The crosshatching patterns should be selected from those shown on page 600-81 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP 608.02. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-4,9-11,17,23,24,31-32,38,39,44-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 31, are unclear regarding if the carrier is part of the invention, or if it is merely an intended use of the coaxial via hole. The carrier is not positively claimed, but merely mentioned in the preamble, creating vagueness in the claim. In addition, in the case that the carrier is part of the invention, it is further incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the location of the cylinder-shaped conductors with respect to the carrier.

Claim 11, recites the phrase: "cylinder-shape conductor can shape as any configuration", which is unclear regarding the shape of the cross section, since the recitation: "any configuration" is a vague and indefinite description.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4,9-10,11,31,38,39,44-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Breitling et al. (US Patent No. 4,675,788). As best understood by the examiner:

Regarding Claim 1, Breitling teaches a coaxial via hole used in a carrier, comprising: an outer cylinder-shaped conductor (reference number 10) extending along a first direction (vertical) ; an inner cylinder-shaped conductor (reference number 16) in the outer cylinder-shaped conductor, wherein the inner cylinder-shaped conductor extends along the first direction; and an insulating fill (reference number 14) between the outer cylinder-shaped conductor and the inner cylinder-shaped conductor.

Regarding Claim 2, Breitling teaches that the first direction is vertical to a direction along which the carrier extends (horizontal).

Regarding Claim 3, Breitling teaches that the carrier is a printed circuit board (PCB) (reference number 1).

Regarding Claim 4, Breitling teaches that the carrier is a substrate (reference number 1).

Regarding Claim 9, Breitling teaches that the carrier at least comprises a conductive layer (reference number 4) and the coaxial via hole penetrates a portion of the carrier.

Regarding Claim 10, Breitling teaches that the carrier at least comprises a conductive layer (reference number 4) and the coaxial via hole penetrates the carrier.

Regarding Claim 11, Breitling teaches that a cross section, in a direction vertical to the first direction, of the outer cylinder-shaped conductor can shape as any configuration and wherein a cross section, in the direction vertical to the first direction, of the inner cylinder-shaped conductor can shape as any configuration (Breitling teaches a circle in this case).

Regarding Claim 31, Breitling teaches a coaxial via hole used in a carrier, comprising: an outer cylinder-shaped conductor (reference number 10) extending along a first direction (vertical); an inner cylinder-shaped conductor (reference number 16) in the outer cylinder-shaped conductor, wherein the inner cylinder-shaped conductor extends along the first direction; and an electrical-resistant fill (reference number 14) between the outer cylinder-shaped conductor and the inner cylinder-shaped conductor.

Regarding Claim 38, Breitling teaches that the carrier is a printed circuit board (PCB) (reference number 1).

Regarding Claim 39, Breitling teaches that the carrier is a substrate (reference number 1).



Regarding Claim 44, Breitling teaches that the first direction is vertical to a direction along which the carrier extends (horizontal).

Regarding Claim 45, Breitling teaches that the carrier at least comprises a conductive layer (reference number 4) and the coaxial via hole penetrates a portion of the carrier.

Regarding Claim 46, Breitling teaches that the carrier at least comprises a conductive layer (reference number 4) and the coaxial via hole penetrates the carrier.

8. Claims 1,17,23,31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. (US Patent No. 5,257,452). As best understood by the examiner:

Regarding Claim 1, Imai teaches a coaxial via hole used in a carrier, comprising: an outer cylinder-shaped conductor (reference number 7) extending along a first direction (vertical) ; an inner cylinder-shaped conductor (reference number 14) in the outer cylinder-shaped conductor, wherein the inner cylinder-shaped conductor extends along the first direction; and an insulating fill (reference number 12) between the outer cylinder-shaped conductor and the inner cylinder-shaped conductor.

Regarding Claim 17, Imai teaches that the outer cylinder-shaped conductor (reference number 7) is connected to a signal conductor (reference number 2a).

Regarding Claim 23, Imai teaches a conductor (reference number 10) which is connected to the outer cylinder-shaped conductor (reference number 7) and is connected to a signal conductor (reference number 2a).

Regarding Claim 31, Imai teaches a coaxial via hole used in a carrier, comprising: an outer cylinder-shaped conductor (reference number 7) extending along a first direction (vertical); an inner cylinder-shaped conductor (reference number 14) in the outer cylinder-shaped conductor, wherein the inner cylinder-shaped conductor extends along the first direction; and an electrical-resistant fill (reference number 12) between the outer cylinder-shaped conductor and the inner cylinder-shaped conductor.

Regarding Claim 32, Imai teaches a conductor (reference number 10) which is connected to the outer cylinder-shaped conductor (reference number 7) and is connected to a signal conductor (reference number 2a).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breitling et al. (US Patent No. 4,675,788) in view of Lee et al. (US Patent No. 5,072,075). As best understood by the examiner:



Regarding Claim 24, Breitling teaches all of the limitations of the instant claimed invention as stated supra for claim 1, but fails to explicitly teach that the insulating fill is made of a material with high dielectric constant. Lee teaches the use of insulating layers (reference numbers 21,22,23) between two conductive layers (reference numbers 20 and 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Breitling and Lee in order to have the insulating fill be made of a material with high dielectric constant, thus improving reliability of the device and providing a thinner layer, improving integration and raising the density.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references teach some of the elements of the instant claimed invention: Fasano et al. (US Patent No. 5,949,030), Reed (US Patent No. 4,211,603), Endoh et al. (US Patent No. 5,374,788), Hamzehdoost et al. (US Patent No. 5,689,091), Jonaidi (US Patent No. 5,834,705) and Cheng (US Patent No. 6,353,999).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose H Alcala whose telephone number is (703) 305-9844. The examiner can normally be reached on Monday to Friday.


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13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

14. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JHA  
March 17, 2003

  
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